

What Five Grid Operators Said about Resilience

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On January 8, FERC issued an order that did two things: first, it terminated its rule on Grid Reliability and Resilience Pricing that was proposed by DOE last October to help prevent the premature retirement of coal and nuclear power plantsⁱ and, second, it initiated a new proceeding to evaluate the resilience of the bulk power system (BPS) in wholesale electricity markets.ⁱⁱ (The BPS is comprised of electricity generation and transmission facilities but not local electricity distribution networks.) As the first step in the new grid resilience proceeding, FERC asked the RTOs/ISOs (grid operators) to answer 25 questions by March 9. Comments from other stakeholders are due May 9.

Because two-thirds of the nation's coal fleetⁱⁱⁱ is located in five RTO/ISO regions, we reviewed the comments of these five grid operators. These are our big-picture, nuance-free takeaways from their comments:

- **ISO-NE** has a major fuel-security risk because of the region's dependence on natural gas and the retirement of coal and nuclear generating capacity.
- **PJM** supports further steps by FERC to address grid resilience.
- **MISO, SPP** and **ERCOT** said, in so many words, that their grids are resilient. (Note: There is no universally agreed-on definition of resilience, nor are there any criteria or metrics for determining whether the grid is resilient. This is part of the reason for the new FERC proceeding.)

We also excerpted below a few statements from their comments^{iv}:

ISO-NE —

- *"The most significant resilience challenge is fuel security – or the assurance that power plants will have or be able to obtain the fuel they need to run."* (p. 1 of ISO-NE comments)
- *"ISO-NE recognizes that fuel security is just one aspect of the bulk power system's resilience; however, it is the most significant challenge for the New England bulk power system's resilience, and it currently has no defined long-term solution."* (p. 4)

- *“C’allenges w’th fuel procure-ent, transportat’on and storage are –ost acute with natural gas ...”* (p. 5)
- *“T’e s’ft away fro- generators w’th on-site fuel to natural gas-fired generators rely’ng on “ust-in-t-e’ fuel-delivery infrastructure has further exposed the l-’tat’on of New England’s ex’s’t’ng fuel-delivery system and heightened the reg’on’s fuel secur’ty r’s.”* (p. 28)
- *“... New England continues to see the retirement of coal, oil, and nuclear power plants, which are needed to maintain reliability when the natural gas-fuel infrastructure is unavailable to the generators.”* (p. 7)

PJM –

- *“T’e Co-’ss’on needs to prov’de ... –etr’cs ... to apply to res’l’ence vulnerab’l’ty and t’reat analys’.”* (p. 5 of PJM comments)
- *FERC should “[r]equest that all RTOs sub-’t ... tar’ff a- end-ents, for any proposed market reforms to address resilience within nine to twelve months from t’e ’ssuance of a F’nal Order ’n t’ ’s doc”et.”* (p. 6)
- *FERC should “[a]rt’culate ’n t’ ’s doc”et t’ at t’ e ... RTOs ... [have] an obligation to assess res’l’ence.”* (p. 5)
- *“[T]’e spec’f’c [res’l’ence] r’s’s to be analyzed and t’e – easur’ng cr’ter’a need to be furt’er developed.”* (p. 19)
- *“[T]’ere ’s add’t’onal wor” to be done ... ’n order to address t’ese [res’l’ence] risks that go beyond what is needed for –eet’ng ex’s’t’ng rel’ab’l’ty standards.”* (p. 19)
- *“RTO w’olesale electr’c’ty, Ancillary Service markets, capac’ty – ar”ets ... were not or’g’nally des’gned w’th res’l’ence ’n – ’nd.”* (p. 66)

MISO –

- *“MISO’s gr’d ’s res’l’ent.”* (p. 2 of MISO comments)
- *“... MISO does not ’ave any ’– ’nent or ’– ed’ate res’l’ence concerns ...”* (p. 2)
- *“[T]’e MISO reg’on ’as successfully ensured res’l’ence (and rel’ab’l’ty) for decades.”* (p. 6)
- *“... MISO recently initiated an in-depth study to identify potential consequences that may occur in the event of natural gas pipeline contingencies.”* (p. 23)
- *“[R]es’l’ence ’s not “ust a fuel secur’ty –atter.”* (p. 3)
- *“Future res’l’ence endeavors –ust balance r’s” w’th costs to consu-ers.”* (p. 6)
- *“Gr’d res’l’ence ’s a nat’onal ’ssue t’at broadly ’–pacts t’e bul” power syste-.”* (p. 2)

SPP –

- *“SPP bel’eves t’e current NERC construct for cont’nually –on’tor’ng and enhancing the NERC reliability standards is sufficient to address current and future needs with regard to enhancing resilience ...”* (p. 18 of SPP comments)

- The risk of over-dependence on any particular fuel type *“has been thus far – ‘n’– al ‘n SPP ...”* (p. 5)
- *“SPP supports furt’ er d’ scuss’ on on w’ ‘c’ types of extre– e scenar’ os s’ ould be considered in studies that RTOs perform ...”* (p. 7)
- *“SPP ‘s ‘n t’ e early stages of develop’ ng a study process t’ at w’ ll focus on generat’ on ret’ re– ent’s ‘– pact to rel’ ab’ l’ ty and res’ l’ ence.”* (p. 8)
- *“Changes to requirements to address resilience could increase the costs of trans– ‘ss’ on owners’ syste– s, and t’ ose ‘ncreased costs would ult’– ately ‘– pact transmission customers and their end-use customers.”* (p. 19)

ERCOT –

- *“ERCOT’s scarc’ ty pr’ c’ ng – ec’ an’s– s are des’ gned to allev’ ate t’ e need for many resilience-based regulatory controls.”* (p. 5 of ERCOT comments)
- *“One of t’ e – ost cr’ t’ cal ele– ents of syste– res’ l’ ence ‘s ensur’ ng t’ at t’ e transmission system is planned in such a way as to ensure continued operations follow’ ng an unexpected outage ...”* (p. 7)
- *“If ERCOT deter– ‘nes t’ at [a] ret’ re– ent would cause a [proble–], t’ en ERCOT may seek to negotiate a reliability-must-run (RMR) agreement with the generat’ on owner ... The availability of RMR agreements thus provides an important reliability backstop ...”* (p. 12)
- *“Anc’ llary serv’ ces play a cr’ t’ cal role ‘n ensur’ ng syste– res’ l’ ence.”* (p. 13)
- Black-start generators *“... provide resilience by enabling restoration of the ERCOT system in the event of a partial or complete loss of power.”* (p. 15)

Recently, DOE issued a report that highlights the resilience of the coal fleet during the Bomb Cyclone.^v The report is a case study for why we need to preserve coal-fueled generation. However, more than a third of the coal fleet nationwide has retired or is expected to retire.^{vi} DOE thinks these retirements may be underestimated.^{vii}

There are any number of steps FERC could take next to ensure the BPS is resilient. However, if FERC does not act with urgency, more of the coal fleet will retire, and the resilience of the BPS will be diminished.

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ⁱ Grid Resiliency Pricing Rule, 82 Fed. Reg. 46,940 (Oct. 10, 2017).

ⁱⁱ Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures, Docket No. AD18-7-000, FERC, January 8, 2018.

ⁱⁱⁱ The coal fleet totaled approximately 256 GW as of January 2018. EIA, *Electric Power Monthly*, Release Date March 23, 2018. Coal-fueled generating capacity in the five RTO/ISO regions total 167 GW: MISO 63 GW, PJM 62 GW, SPP 26 GW, ERCOT 15 GW and ISO-NE 1.1 GW.

^{iv} *Response of ISO New England, Inc. March 9, 2018; Comments and Responses of PJM Interconnection, L.L.C., March 9, 2018; Responses of the Midcontinent Independent System Operator, March 9, 2018; Joint Comments of the Electric Reliability Council of Texas, Inc. and the Public Utility Commission of Texas, March 9, 2018; Comments of Southwest Power Pool, Inc. on Grid Resilience Issues, March 9, 2018.*

^v *Reliability, Resilience and the Oncoming Wave of Retiring Baseload Units Volume 1: The Critical Role of Thermal Units During Extreme Weather Events*, March 13, 2018, DOE/NETL-2018/1881. (“DOE/NETL report”)

^{vi} ACCCE, *Retirement of U.S. Coal-Fired Generating Units*, January 2018.

^{vii} See Chapter 2 (“The Prospect of Further Large-Scale Retirements”) of the DOE/NETL report.